

## Search Plan and Results

### Question

[What are the health effects related to consumption of nuts? \(DGAC 2010\)](#)

### Date Searched

11/24/09

### Inclusion Criteria

#### Health outcomes:

- Cardiovascular disease (CVD)/coronary heart disease (CHD) risk
- Blood lipids - LDL-C, HDL-C; non HDL-C
- Markers of Inflammation
- Insulin sensitivity; glucose tolerance
- Type 2 diabetes risks.

#### Subjects/Population

**Age:** Two years to adults.

#### Setting:

- Any, except ICU, burn unit inpatient or emergency care, US and International
- Non-hospitalized.

#### Health status:

- Healthy
- Dyslipidemia, Hyperlipidemia\* or Hypercholesterolemia, CHD, CVD, Type 2 Diabetes
- \*According to ATP III (2004), hyperlipidemia is defined as a TC greater than 200 and/or LDL-C greater than 130 without CVD; LDL-C greater than 100 with CVD; and LDL-C greater than 70 for patients with a CHD event, stroke, TIA, peripheral vascular disease AND ONE OF THE FOLLOWING: 1) acute coronary syndrome, 2) type 2 diabetes mellitus, 3) metabolic syndrome, 4) a SINGLE POORLY CONTROLLED risk factor, 5) 3 risk factors irrespective of how well controlled.

Note: in ATP III, diabetes is regarded as a CHD risk equivalent.

**Nutrition related problem/condition:** *Cardiac Events:* MI, arrhythmia, angioplasty, stent, death, weight gain, incidence of type 2 diabetes, gall bladder disease

#### Study design preferences:

- Randomized controlled trials
- Meta-analysis and systematic reviews
- Prospective cohort studies.

**Intervention:** Feeding period must be greater than four weeks.

**Size of study groups:**

- Sample size must equal 10 subjects for each study group. This would include 10 subjects in the intervention group and 10 subjects in the control or comparison group
- Study dropout rate: Less than 20%; preference for smaller dropout rates.

**Authorship:**

- If an author is included on more than one review article or primary research article that is similar in content, the most recent review or article will be accepted and earlier versions will be rejected
- If an author is included on more than one review article or primary research article and the content is different, then both reviews may be accepted.

**Languages:** Limited to articles in English.

**Other:** Article must be published in peer-reviewed journal.

**Year range:** 2004 to November 2009.

## Exclusion Criteria

### Subjects/Population

**Age:** Less than two years of age.

**Setting:** ICU, burn unit, emergency care, hospitalized.

**Health status:** Diagnosed with disease.

**Nutrition Related Problem/Condition:** Cardiac Events: Other than stroke.

**Size of study groups:** Sample sizes <10.

**Study designs:**

- Cross sectional studies
- Case-control studies
- Feeding periods < four weeks
- Experimental fat must be from natural sources.

**Study dropout rate:** Dropout rate in a study is 20% or greater.

**Year range:** Prior to Dec 2003.

**Authorship:** Studies by same author similar in content.

**Languages:** Articles not in English.

**Other:** Animal studies; Abstracts or presentations.

## **Search Terms: Search Vocabulary**

(nuts[mh] OR hazelnut\* OR filbert\* OR chestnut\* OR Walnuts OR pecans OR almonds OR (brazilian nuts) OR pistachios OR (macadamia nuts) OR cashews) AND ("Coronary Disease"[Mesh] OR "Heart Diseases"[Mesh] OR "Cardiovascular Diseases"[Mesh:NoExp] OR Myocardial infarction[mh] OR "Diabetes Mellitus, Type 2"[Mesh] OR "Dyslipidemias"[Mesh] OR "Weight Gain"[Mesh] OR "Blood Pressure"[Mesh] OR "Hypertension"[Mesh]) Eng/humans 218  
"Dyslipidemias"[Mesh] (includes hypercholesterolemia OR hyperlipidemia)

### Electronic Databases

**Total hits from all electronic database searches:** 218

**Total articles identified to review from electronic databases:** 54

Articles Identified Via Handsearch or Other Means

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### Summary of Articles Identified to Review

**Number of Primary Articles Identified:** 14

**Number of Review Articles Identified:** 3

**Total Number of Articles Identified:** 17

**Number of Articles Reviewed but Excluded:** 20

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### List of Articles Included for Evidence Analysis

#### **Research Articles Sorted by Study Designs**

##### ***Systematic reviews/Meta-analysis:***

Banel DK, Hu FB. [Effects of walnut consumption on blood lipids and other cardiovascular risk factors: a meta-analysis and systematic review](#). Am J Clin Nutr. 2009 Jul; 90 (1): 56-63. Epub 2009 May 20. PMID: 19458020.

Mukuddem-Petersen J., Oosthuizen W, and Jerling JC. [A systematic review of the effects of nuts on blood lipid profiles in humans](#). *J. Nutr.* 135: 2, 082-2, 089, September 2005. PMID: 16140880

Phung OJ, Makanji SS, White CM, Coleman CI. [Almonds have a neutral effect on serum lipid profiles: a meta-analysis of randomized trials](#). *J Am Diet Assoc.* 2009 May; 109 (5): 865-873. Review. PMID: 19394473.

**Randomized controlled trials:**

Gebauer SK, West SG, Kay CD, Alaupovic P, Bagshaw D, Kris-Etherton PM. [Effects of pistachios on cardiovascular disease risk factors and potential mechanisms of action: a dose-response study](#). *Am J Clin Nutr.* 2008 Sep; 88 (3): 651-659. PMID: 18779280.

Griel AE, Cao Y, Bagshaw DD, Cifelli AM, Holub B, Kris-Etherton PM. [A macadamia nut-rich diet reduces total and LDL-cholesterol in mildly hypercholesterolemic men and women](#). *J Nutr.* 2008 Apr; 138 (4): 761-767. PMID: 18356332.

Olmedilla-Alonso B, Granado-Lorencio F, Herrero-Barbudo C, Blanco-Navarro I, Blázquez-García S, Pérez-Sacristán B. [Consumption of restructured meat products with added walnuts has a cholesterol-lowering effect in subjects at high cardiovascular risk: a randomised, crossover, placebo-controlled study](#). *J Am Coll Nutr.* 2008 Apr; 27 (2):342-348. PMID: 18689569.

Rajaram S, Haddad EH, Mejia A, Sabaté J. [Walnuts and fatty fish influence different serum lipid fractions in normal to mildly hyperlipidemic individuals: a randomized controlled study](#). *Am J Clin Nutr.* 2009 May; 89 (5): 1, 657S-1, 663S. Epub 2009 Apr 1. PMID: 19339404.

Sabaté J, Cordero-Macintyre Z, Siapco G, Torabian S, Haddad E. [Does regular walnut consumption lead to weight gain?](#) *Br J Nutr.* 2005 Nov; 94 (5): 859-864. PMID: 16277792.

Salas-Salvadó J, Fernández-Ballart J, Ros E, Martínez-González MA, Fitó M, Estruch R, Corella D, Fiol M, Gómez-Gracia E, Arós F, Flores G, Lapetra J, Lamuela-Raventós R, Ruiz-Gutiérrez V, Bulló M, Basora J, Covas MI; PREDIMED Study Investigators. [Effect of a Mediterranean diet supplemented with nuts on metabolic syndrome status: one-year results of the PREDIMED randomized trial](#). *Arch Intern Med.* 2008 Dec 8;168 (22): 2, 449-2, 458. PMID: 19064829. (Hand Search)

Sheridan MJ, Cooper JN, Erario M, Cheifetz CE. [Pistachio nut consumption and serum lipid levels](#). *J Am Coll Nutr.* 2007 Apr; 26 (2):141-148. PMID: 17536125.

**Prospective cohort studies:**

Bes-Rastrollo M, Wedick NM, Martinez-Gonzalez MA, Li TY, Sampson L, Hu FB. [Prospective study of nut consumption, long-term weight change, and obesity risk in women](#). *Am J Clin Nutr.* 2009 Jun; 89 (6):1, 913-1, 919. Epub 2009 Apr 29. PMID: 1940363.

Bes-Rastrollo M, Sabaté J, Gómez-Gracia E, Alonso A, Martínez JA, Martínez-González MA. [Nut consumption and weight gain in a Mediterranean cohort: The SUN study](#). *Obesity (Silver Spring).* 2007 Jan; 15 (1):107-116. PMID: 17228038.

Djoussé L, Rudich T, Gaziano JM. [Nut consumption and risk of hypertension in US male physicians](#). *Clin Nutr.* 2009 Feb; 28 (1):10-14. Epub 2008 Oct 2. PMID: 18834651.

Li TY, Brennan AM, Wedick NM, Mantzoros C, Rifai N, Hu FB. [Regular consumption of nuts is associated with a lower risk of cardiovascular disease in women with type 2 diabetes](#). *J Nutr.* 2009 Jul;139 (7):1, 333-1, 338. Epub 2009 May 6. PMID: 19420347.

Salas-Salvadó J, Garcia-Arellano A, Estruch R, Marquez-Sandoval F, Corella D, Fiol M, Gómez-Gracia E, Viñoles E, Arós F, Herrera C, Lahoz C, Lapetra J, Perona JS, Muñoz-Aguado D, Martínez-González MA, Ros E; PREDIMED Investigators. [Components of the Mediterranean-type food pattern and serum inflammatory markers among patients at high risk for cardiovascular disease](#). *Eur J Clin Nutr.* 2008 May; 62 (5): 651-659. Epub 2007 Apr 18. PMID: 17440519.

**American Dietetic Association (ADA) Sort List for Almonds updated by USDA-NEL Searches**

ADA Evidence Summaries and Worksheets were made available to the Subcommittee for review along with the NEL search. Last update August 2008.

**1. What is the relationship between consuming almonds and cholesterol levels in subjects with**

## **hyperlipidemia?**

Jenkins DJ, Kendall CW, Marchie A, Parker TL, Connelly PW, Qian W, Haight JS, Faulkner D, Vidgen E, Lapsley KG, Spiller GA. Dose response of almonds on coronary heart disease risk factors: blood lipids, oxidized low-density lipoproteins, lipoprotein (a), homocysteine, and pulmonary nitric oxide: a randomized, controlled, crossover trial. *Circulation*. 2002 Sep 10; 106 (11): 1, 327-1, 332. PMID: 12221048.

Sabate J, Haddad E, Tanzman JS, Jambazian P, Rajaram S. Serum lipid response to the graduated enrichment of a Step I diet with almonds: a randomized feeding trial. *Am J Clin Nutr*. 2003 Jun; 77 (6): 1, 379-1, 384. PMID: 12791613.

Spiller GA, Miller A, Olivera K, Reynolds J, Miller B, Morse SJ, Dewell A, Farquhar JW. Effects of plant-based diets high in raw or roasted almonds, or roasted almond butter on serum lipoproteins in humans. *J Am Coll Nutr*. 2003 Jun; 22 (3): 195-200. PMID: 12805245.

Spiller GA, Jenkins DJA, Bosello O, Gates JE, Craven LN, Bruce B. Nuts and plasma lipids: an almond diet lowers LDL-C while preserving HDL-C. *J Am Coll Nutr*. 1998; 17 (3): 285-290.

Spiller GA, Jenkins DJA, Craven LN, Gates JE, Bosella O, Berra K, Rudd C, Stevenson M, Superko R. Effect of a diet high in monounsaturated fat from almonds on plasma cholesterol and lipoproteins. *J Am Coll Nutr*. 1992; 11 (2): 126-130.

## **2. What is the relationship between consuming almonds and cholesterol levels in subjects with normal cholesterol levels?**

Abbey M, Noakes M, Belling GB, Nestel PJ. Partial replacement of saturated fatty acids with almonds or walnuts lowers total plasma cholesterol and low-density-lipoprotein cholesterol. 1994. *Am J Clin Nutr*. 59 (5): 995-999.

Hyson DA, Schneeman BO, Davis PA. Almonds and almond oil have similar effects on plasma lipids and LDL oxidation in healthy men and women. *J Nutr*. 2002 Apr; 132 (4): 703-7. PMID: 11925464.

Kurlansky SB, Stote KS. Cardioprotective effects of chocolate and almond consumption in healthy women. *Nutr. Res.* 2006; 26: 509-516.

Wien MA, Sabate JM, Ikeda DN, Cole SE, Kandeel FR. Almonds vs complex carbohydrates in a weight reduction program. *Int J Obes Relat Metab Disord*. 2003 Nov; 27 (11): 1, 365-1, 372. Erratum in: *Int J Obes Relat Metab Disord*. 2004 Mar; 28 (3): 459. PMID: 14574348.

## **3. What is the relationship between consuming almonds and the risk of coronary heart disease?**

No evidence exists to describe this relationship.

**Note:** ADA Sort List for "Nuts" dated 2004 provided to Subcommittee as ADA evidence summaries and conclusion statements.

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## List of Excluded Articles with Reason

Articles	Reason for Exclusion
Allen LH. Priority areas for research on the intake, composition, and health effects of tree nuts and peanuts. <i>J Nutr</i> . 2008 Sep;138 (9):1, 763S-1, 765S. PMID: 18716183.	Conference summary on the health effects of nut consumption.
Barceló F, Perona JS, Prades J, Funari SS, Gomez-Gracia E, Conde M, Estruch R, Ruiz-Gutiérrez V. <a href="#">Mediterranean-style diet effect on the structural properties of the erythrocyte cell membrane of hypertensive patients: the Prevencion con Dieta Mediterranea Study</a> . <i>Hypertension</i> . 2009 Nov; 54 (5): 1, 143-1, 150. Epub 2009 Oct 5. PMID: 19805640.	The variable study is erythrocyte membrane properties.

Berry SE, Tydeman EA, Lewis HB, Phalora R, Rosborough J, Picout DR, Ellis PR. <a href="#">Manipulation of lipid bioaccessibility of almond seeds influences postprandial lipemia in healthy human subjects.</a> Am J Clin Nutr. 2008 Oct; 88 (4): 922-929. PMID: 18842777.	Postprandial study.
Blomhoff R, Carlsen MH, Andersen LF, Jacobs DR Jr. <a href="#">Health benefits of nuts: potential role of antioxidants.</a> Br J Nutr. 2006 Nov; 96 Suppl 2: S52-60. Erratum in: Br J Nutr. 2008 Feb; 99(2): 447-448. PMID: 17125534.	Narrative review; study of antioxidants in nuts.
Canales A, Benedí J, Nus M, Librelotto J, Sánchez-Montero JM, Sánchez-Muniz FJ. <a href="#">Effect of walnut-enriched restructured meat in the antioxidant status of overweight/obese senior subjects with at least one extra CHD-risk factor.</a> J Am Coll Nutr. 2007 Jun; 26 (3): 225-232. PMID: 17634167.	Captured in systematic review by Banel and Hu, 2009.
Chapman KM, Chan MW, Clark CD. <a href="#">Factors influencing dairy calcium intake in women.</a> J Am Coll Nutr. 1995 Aug; 14 (4): 336-340. PMID: 8568109.	Study is about calcium rich foods.
Chung FM, Shieh TY, Yang YH, Chang DM, Shin SJ, Tsai JC, Chen TH, Tai TY, Lee YJ. <a href="#">The role of angiotensin-converting enzyme gene insertion/deletion polymorphism for blood pressure regulation in areca nut chewers.</a> Transl Res. 2007 Jul; 150 (1): 58-65. Epub 2007 May 23. PMID: 17585864.	Study involves local nut chewed for the tannin content - areca tannin.
Djoussé L, Rudich T, Gaziano JM. <a href="#">Nut consumption and risk of heart failure in the Physicians' Health Study I.</a> Am J Clin Nutr. 2008 Oct; 88 (4): 930-933. PMID: 18842778.	Dependent variable not included in the question.
Estruch R, Martínez-González MA, Corella D, Salas-Salvadó J, Ruiz-Gutiérrez V, Covas MI, Fiol M, Gómez-Gracia E, López-Sabater MC, Vinyoles E, Arós F, Conde M, Lahoz C, Lapetra J, Sáez G, Ros E; PREDIMED Study Investigators. <a href="#">Effects of a Mediterranean-style diet on cardiovascular risk factors: a randomized trial.</a> Ann Intern Med. 2006 Jul 4; 145 (1): 1-11. PMID: 1681892.	High attrition rate >20%.
Garg ML, Blake RJ, Wills RB, Clayton EH. <a href="#">Macadamia nut consumption modulates favourably risk factors for coronary artery disease in hypercholesterolemic subjects.</a> Lipids. 2007 Jun; 42 (6): 583-587. Epub 2007 Apr 17. PMID: 17437143.	High attrition rate >20%.
Gebauer SK, Psota TL, Harris WS, Kris-Etherton PM. <a href="#">n-3 fatty acid dietary recommendations and food sources to achieve essentiality and cardiovascular benefits.</a> Am J Clin Nutr. 2006 Jun; 83 (6 Suppl): 1, 526S-1, 535S. Review. PMID: 16841863.	Narrative review n-3 oils (consider moving to n-3 marine and plants)
Gillen LJ, Tapsell LC, Patch CS, Owen A, Batterham M. <a href="#">Structured dietary advice incorporating walnuts achieves optimal fat and energy balance in patients with type 2 diabetes mellitus.</a> J Am Diet Assoc. 2005 Jul; 105 (7): 1, 087-1, 096. PMID: 15983525.	Variable studied is structural dietary advice to include walnut.
Jenkins DJ, Kendall CW, Marchie A, Josse AR, Nguyen TH, Faulkner DA, Lapsley KG, Blumberg J. <a href="#">Almonds reduce biomarkers of lipid peroxidation in older hyperlipidemic subjects.</a> J Nutr. 2008 May; 138 (5): 908-913. PMID: 18424600.	Captured in systematic review by A meta-analysis by Phung et al, 2009.
Jenkins DJ, Kendall CW, Marchie A, Josse AR, Nguyen TH, Faulkner DA, Lapsley KG, Singer W. <a href="#">Effect of almonds on insulin secretion and insulin resistance in nondiabetic hyperlipidemic subjects: a randomized controlled crossover trial.</a> Metabolism. 2008 Jul; 57 (7): 882-887. PMID: 18555827.	High attrition rate >20%.
Jenkins DJ, Hu FB, Tapsell LC, Josse AR, Kendall CW. <a href="#">Possible benefit of nuts in type 2 diabetes.</a> J Nutr. 2008 Sep; 138 (9): 1, 752S-1, 756S. PMID: 18716181.	Narrative review.

Jenkins DJ, Kendall CW, Faulkner DA, Kemp T, Marchie A, Nguyen TH, Wong JM, de Souza R, Emam A, Vidgen E, Trautwein EA, Lapsley KG, Josse RG, Leiter LA, Singer W. <a href="#">Long-term effects of a plant-based dietary portfolio of cholesterol-lowering foods on blood pressure</a> . <i>Eur J Clin Nutr.</i> 2008 Jun; 62 (6): 781-788. Epub 2007 Apr 25. PMID: 17457340.	Non-RCT; Independent variable: portfolio diet; Outcomes not be attributable to almonds alone.
Jiménez-Gómez Y, López-Miranda J, Blanco-Colio LM, Marín C, Pérez-Martínez P, Ruano J, Paniagua JA, Rodríguez F, Egido J, Pérez-Jiménez F. <a href="#">Olive oil and walnut breakfasts reduce the postprandial inflammatory response in mononuclear cells compared with a butter breakfast in healthy men</a> . <i>Atherosclerosis.</i> 2009 Jun; 204 (2): e70-6. Epub 2008 Sep 17. PMID: 18952211.	Postprandial study.
Jones PJ, Raeini-Sarjaz M, Jenkins DJ, Kendall CW, Vidgen E, Trautwein EA, Lapsley KG, Marchie A, Cunnane SC, Connelly PW. <a href="#">Effects of a diet high in plant sterols, vegetable proteins, and viscous fibers (dietary portfolio) on circulating sterol levels and red cell fragility in hypercholesterolemic subjects</a> . <i>Lipids.</i> 2005 Feb; 40 (2): 169-174. PMID: 15884765.	Variable studied not included; plant sterols and red cell fragility.
Kranz S, Smiciklas-Wright H, Francis LA. <a href="#">Diet quality, added sugar, and dietary fiber intakes in American preschoolers</a> . <i>Pediatr Dent.</i> 2006 Mar-Apr; 28 (2): 164-171; discussion 192-198. PMID: 16708792.	Study involves fiber, sugar and diet quality.
López-Uriarte P, Bulló M, Casas-Agustench P, Babio N, Salas-Salvadó J. <a href="#">Nuts and oxidation: a systematic review</a> . <i>Nutr Rev.</i> 2009 Sep; 67 (9): 497-508. Review. PMID: 19703258.	Review covers oxidation and oxidation enzymes.
Mercanligil SM, Arslan P, Alasalvar C, Okut E, Akgül E, Pinar A, Geyik PO, Tokgözo?lu L, Shahidi F. <a href="#">Effects of hazelnut-enriched diet on plasma cholesterol and lipoprotein profiles in hypercholesterolemic adult men</a> . <i>Eur J Clin Nutr.</i> 2007 Feb; 61 (2): 212-220. Epub 2006 Sep 13. PMID: 16969381.	Small # N=15; Experimental diet (>250 kcal than baseline/control); methods issues.
Mozaffarian D. <a href="#">Does alpha-linolenic acid intake reduce the risk of coronary heart disease? A review of the evidence</a> . <i>Altern Ther Health Med.</i> 2005 May-Jun; 11 (3): 24-30; quiz 31, 79. Review. PMID: 15945135.	Study involves ALA intake. Move to n-3 plants.
Mukuddem-Petersen J, Stonehouse Oosthuizen W, Jerling JC, Hanekom SM, White Z. <a href="#">Effects of a high walnut and high cashew nut diet on selected markers of the metabolic syndrome: a controlled feeding trial</a> . <i>Br J Nutr.</i> 2007 Jun; 97(6): 1, 144-1, 153. Epub 2007 Mar 7. PMID: 17381974	Captured in systematic review by Banel and Hu, 2009.
Muñoz KA, Krebs-Smith SM, Ballard-Barbash R, Cleveland LE. <a href="#">Food intakes of US children and adolescents compared with recommendations</a> . <i>Pediatrics.</i> 1997 Sep; 100 (3 Pt 1):323-329. Erratum in: <i>Pediatrics.</i> 1998 May;101(5):952-3. PMID: 9282700.	Study about food intake of children.
Nash SD, Westpfal M. <a href="#">Cardiovascular benefits of nuts</a> . <i>Am J Cardiol.</i> 2005 Apr 15; 95 (8): 963-965. No abstract available. PMID: 15820163.	Narrative review.
Nies LK, Cymbala AA, Kasten SL, Lamprecht DG, Olson KL. <a href="#">Complementary and alternative therapies for the management of dyslipidemia</a> . <i>Ann Pharmacother.</i> 2006 Nov; 40 (11): 1, 984-1, 992. Epub 2006 Oct 17. Review. PMID: 17047144.	Review of therapeutic approaches.
Nitzan Kaluski D, Basch CE, Zybert P, Deckelbaum RJ, Shea S. <a href="#">Calcium intake in preschool children--a study of dietary patterns in a low socioeconomic community</a> . <i>Public Health Rev.</i> 2001; 29 (1): 71-83. PMID: 11780718.	Study of dietary patterns.
Ritter-Goorder PK, Lewis NM, Heidal KB, Eskridge KM. <a href="#">Validity and reliability of a quantitative food frequency questionnaire measuring n-3 fatty acid intakes in cardiac patients in the Midwest: a validation pilot study</a> . <i>J Am Diet Assoc.</i> 2006 Aug;106(8):1, 251-1, 255. PMID: 16863722.	Study involves validation of a FFQ.

Ros E. <a href="#">Nuts and novel biomarkers of cardiovascular disease</a> . <i>Am J Clin Nutr.</i> 2009 May; 89 (5):1, 649S-1, 656S. Epub 2009 Mar 25. Review. PMID: 19321561.	Narrative review; used to identify references.
Ros E, Mataix J. <a href="#">Fatty acid composition of nuts--implications for cardiovascular health</a> . <i>Br J Nutr.</i> 2006 Nov; 96 Suppl 2: S29-35. Erratum in: <i>Br J Nutr.</i> 2008 Feb;99 (2): 447-448. PMID: 17125530.	Narrative review.
Ros E, Núñez I, Pérez-Heras A, Serra M, Gilabert R, Casals E, Deulofeu R. <a href="#">A walnut diet improves endothelial function in hypercholesterolemic subjects: a randomized crossover trial</a> . <i>Circulation.</i> 2004 Apr 6; 109 (13): 1, 609-1, 614. Epub 2004 Mar 22. PMID: 15037535.	Captured in systematic review by Banel and Hu, 2009.
Sabaté J, Ang Y. <a href="#">Nuts and health outcomes: new epidemiologic evidence</a> . <i>Am J Clin Nutr.</i> 2009 May; 89(5):1, 643S-1, 648S. Epub 2009 Mar 25. Review. PMID: 19321572.	Narrative review scoring evidence on nutrient intake.
Schutte AE, Van Rooyen JM, Huisman HW, Mukuddem-Petersen J, Oosthuizen W, Hanekom SM, Jerling JC. <a href="#">Modulation of baroreflex sensitivity by walnuts versus cashew nuts in subjects with metabolic syndrome</a> . <i>Am J Hypertens.</i> 2006 Jun; 19 (6): 629-636. PMID: 16733237.	Dependent variable not included in the question.
Spaccarotella KJ, Kris-Etherton PM, Stone WL, Bagshaw DM, Fishell VK, West SG, Lawrence FR, Hartman TJ. <a href="#">The effect of walnut intake on factors related to prostate and vascular health in older men</a> . <i>Nutr J.</i> 2008 May 2; 7: 13. PMID: 18454862.	Captured in systematic review Banel and Hu, 2009.
Tapsell LC, Gillen LJ, Patch CS, Batterham M, Owen A, Baré M, Kennedy M. <a href="#">Including walnuts in a low-fat/modified-fat diet improves HDL cholesterol-to-total cholesterol ratios in patients with type 2 diabetes</a> . <i>Diabetes Care.</i> 2004 Dec; 27 (12): 2, 777-2, 783. PMID: 15562184.	Captured in systematic review Banel and Hu, 2009.
Tapsell LC, Batterham MJ, Teuss G, Tan SY, Dalton S, Quick CJ, Gillen LJ, Charlton KE. <a href="#">Long-term effects of increased dietary polyunsaturated fat from walnuts on metabolic parameters in type II diabetes</a> . <i>Eur J Clin Nutr.</i> 2009 Aug; 63(8): 1, 008-1, 015. Epub 2009 Apr 8. PMID: 19352378.	High attrition rate, 30%.
Wolfe WS, Campbell CC. <a href="#">Food pattern, diet quality, and related characteristics of schoolchildren in New York State</a> . <i>J Am Diet Assoc.</i> 1993 Nov; 93 (11): 1, 280-1, 284. PMID: 8227878.	Out of date range; food patterns.
Zazpe I, Sanchez-Tainta A, Estruch R, Lamuela-Raventos RM, Schröder H, Salas-Salvado J, Corella D, Fiol M, Gomez-Gracia E, Aros F, Ros E, Ruiz-Gutierrez V, Iglesias P, Conde-Herrera M, Martinez-Gonzalez MA. <a href="#">A large randomized individual and group intervention conducted by registered dietitians increased adherence to Mediterranean-type diets: the PREDIMED study</a> . <i>J Am Diet Assoc.</i> 2008 Jul; 108(7):1, 134-1, 144; discussion 1, 145. PMID: 18589019.	Study reports on behavioral intervention aspect of the same study captured earlier.
Zibaeenezhad MJ, Shamsnia SJ, Khorasani M. <a href="#">Walnut consumption in hyperlipidemic patients</a> . <i>Angiology.</i> 2005 Sep-Oct; 56 (5): 581-583. PMID: 16193197.	Case-control study.